As previously discussed, when the thickness of the elastic body is between 1 and 5 mm and the width of the elastic body is between 1 and 10 mm, the total area of the partial uncoating portion and the peeling portion is low. As shown in the specification at, for example, Table 1, this range is critical and yields unexpected results. The inventors discovered this range by considering the impact of the combination of the thickness and width of the elastic body on the total area of the partial uncoating portion and the peeling portion of a pillar structure.

In the "Response to Arguments" section of the Office Action, the Office Action alleges that one having ordinary skill in the art would have recognized from Gane that the optimum width and thickness of a flexible blade could be determined through routine experimentation. However, under the result-effective variable doctrine, a particular parameter must first be recognized as a result-effective variable before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. See MPEP §2144.05. Gane merely discloses one example for the thickness and one example of the length of the flexible blade. Gane does not disclose the combined impact of width and thickness of the flexible blade to the total area of the partial uncoating portion and the peeling portion of a pillar structure. None of the cited references discloses the combined impact of the thickness and width of the elastic body on the total area of the partial uncoating portion and the peeling portion. Thus, the references do not recognize that the thickness and width, combined, of the elastic body are variables that produce the result of impacting the total area of the partial uncoating portion and the peeling portion of a pillar structure.

Also, Gane indicates that the flexible blade should 1) flex sufficiently and 2) apply enough pressure during application of the coating. See col. 3, lines 11-35 of Gane. As a result, a smooth and level coating is applied to the sheet material. See col. 2, lines 46-51 of

Gane. In case of Gane, the object of the smooth and level coating is to attain good opacity, gloss and printing properties. See col. 4, lines 13 and 14 of Gane. Gane uses a flexible blade, which is mounted in a manner such that its free edge flexes sufficiently to be substantially tangential to the web at the point of contact. However, the dimensions are not comparable to the width and thickness of the elastic body according to the present application. See col. 5, lines 6-9 of Gane. Thus, Gane does not teach nor render obvious the claimed invention.

"Partial uncoating" refers to a state where the coating is thin and the outer peripheral surface of the pillar structure is exposed. See page 32, lines 4-8 of the specification. Minimizing partial uncoating and peeling differs from seeking a smooth and level coating.

Gane merely teaches orienting particles with platelets parallel to the surface of paper to attain a smooth and level coating. This orienting was derived from the asserted high viscosity of the composition used in the coating. See col. 4, lines 5-14 of Gane. However, a viscosity of around 2500mp (see col. 6 of Table 1 of Gane), which corresponds to around 2.5Pas., is quite low in comparison to the present application. In the present application, the viscosity of the coating material is preferably 15 to 50 Pa. See page 23, line 3 of the specification.

If one uses a coating composition having a viscosity of around 2.5 Pas in the present application, the coating composition would drop down since the elastic body is set in a vertical direction on the fired surface of pillar structure in the present application, and not in horizontal direction as Gane. As a result, a plurality of cracks will result on the surface of the coating layer of the pillar structure because an excessive amount of water derived from the coating composition evaporates during drying step after coating step. Thus, an asserted optimization for Gane's smooth and level coating would not result in the recited thickness and width that are based on minimizing partial uncoating and peeling.

Further, in the present application, a minimal thickness of the coating is required for preventing cracks in the outer periphery surface of the pillar structure. However, Fukuta does not maintain a sufficient minimal thickness for preventing cracks due to the use of the SUS steel blade. There is a possibility of peeling on the outer periphery surface at points directly in contact with the SUS steel blade. Furthermore, even when the pillar structure body does not directly contact the SUS steel blade, the coating material, which has been coated, may easily peel off because it is rotating on a slant.

Fukuta does not take into consideration the risk of peeling when having a thin coating, such as 0.3 mm, as shown in Table 1 of the specification. The possibility of peeling becomes higher when the nozzle is in contact with the outer periphery surface due to slanting of the columnar body. Under such conditions, the criticality of width and thickness depends on the properties of the coating material to be applied, the structural property of coated subject, and the elastic body.

More specifically, when the pillar structure slants forward and the distance to the nozzle is minimal, the elastic body should have an elasticity sufficient to prevent the nozzle from directly contacting the outer periphery surface. Therefore, when the pillar structure slants toward the back, away from the nozzle, the elastic body should be flexible enough to supply sufficient pressure to ensure no occurrence of partial uncoating portions. Accordingly, Fukuta in view of Gane fail to teach or render obvious the sheet-like elastic body has a thickness of 1-5 mm and a width of 1-10 mm.

B. Claim 32

Regarding claim 32, the Office Action asserts that the recited hardness of the flexible blade would have been determined through routine experimentation in the absence of a showing of criticality. However, as discussed below, this assertion is improper.

The feature that the sheet-like elastic body has a hardness of 30-80, as recited in claim 32, is "critical" when the thickness and width of the elastic body fall within the recited ranges, as described in the present application. Based on Examples 12-14 of Table 1 of the Specification, when the hardness of the elastic body is greater than 80, peeling of the outer peripheral surface and partial uncoating are significantly higher (i.e., more than 10% and less than 20% of the outer peripheral surface). See Example 14 of Table 1. Also, when the hardness of the elastic body is between 30 and 80 and the thickness and width fall within the recited ranges, the total area of the partial uncoating portion and the peeling portion is low (i.e., 10% or less of the outer peripheral surface). See Examples 12 and 13 of Table 1. Thus, the hardness of the elastic body is a critical factor. The applied references do not realize the criticality of the recited range of the hardness, much less the criticality of the combined effects of hardness with the ranges of width and thickness.

C. The Rejection Should Be Withdrawn

The dependent claims are patentable at least due to their dependence on allowable independent claim 20 and for the additional features they recite.

Accordingly, withdrawal of the rejection of the claims is respectfully requested.

II. Conclusion

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 20, 21, 23-25, 27, 28 and 32-40 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

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